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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,152	12/30/2003	Young Gi Lee	2013P155	7900

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EXAMINER

MARTIN, ANGELA J

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/750,152

Applicant(s)

LEE ET AL.

Examiner

Angela J. Martin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is responsive to the Remarks filed on January 9, 2006. However, the rejection is made final for the following reasons of record.

Claim Rejections - 35 USC § 102/103

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-14 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Munshi, U.S. Pat. No. 6,645,675

B1.

Rejection of claims 1-12 drawn to a composite polymer electrolyte; claims 13-14 drawn to a method of manufacturing a composite polymer electrolyte.

Munshi teaches a composite polymer electrolyte for a lithium secondary battery (col. 5, lines 18-40) which comprises a first polymer matrix made of a first porous polymer; a second polymer matrix and made of an ion conductor, an inorganic material, and a second porous polymer; and an electrolyte solution impregnated into the first and second polymer matrices (col. 6, lines 29-64). It teaches the first porous polymer is polyvinylidene fluoride (col. 6, lines 35-45). It teaches the single ion conductor is methylmethacrylate (col. 14, lines 45-50). It teaches the second polymer is a vinylidene fluoride based polymer (col. 7, lines 1-5). It teaches the inorganic material is silica or alumina (col. 10, lines 61-64). It teaches the inorganic material is added in an amount of about 0.1-60% (col. 9, lines 25-41). It teaches the thickness of the polymer matrix is 2-100 microns (col. 7, lines 19-22; col. 22, lines 8-10). It teaches the electrolyte is 1-99% by weight (col. 15, lines 29-40). It teaches the lithium salt is lithium chlorate (col. 15, lines 3-10). It teaches about 1-25% by wt lithium salt (col. 7, lines 25-34). It teaches a method of manufacturing an electrolyte for a lithium secondary battery comprising preparing a first polymer, dissolving a single ion conductor, inorganic material and second polymer in a predetermined ratio to produce a solution, coating the polymers, and impregnating the polymers with electrolyte solution (Examples 1-5). It teaches a co-solvent of ethanol (col. 17, lines 55-60).

Thus, the claims are anticipated.

However, if the claims are not anticipated, they are obvious over the prior art of record because although the prior art of record does not teach a second polymer has a second pore size smaller than the first pore size of the first polymer, if the first polymer

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is a different type of polymer from the second polymer, they would have different sizes; and from the list of polymers in the prior art of record, the second polymer would have a smaller pore size than the first polymer.

Response to Arguments

4. Applicant's arguments filed 1/9/06 have been fully considered but they are not persuasive. Applicant argues that Munshi "does not teach or suggest anything about the pore sizes of these polymers." However, in the list of polymers, col. 6, lines 45-64, Munshi describes other polymers with respect to the first porous polymer, including polyethylene, polypropylene, polyacrylonitrile. As evidenced by OEM GE PVDF Transfer Membranes, the pore size of PVDF may range from 0.22 to 0.45 micron; and as evidenced by Small Parts, Inc., the pore size of polyethylene may range from 10-120 microns. Thus, the pore sizes of various polymers may vary, wherein the second pore size may be smaller than the first pore size.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AJM



PATRICK JOSEPH RYAN
SENIOR PATENT EXAMINER